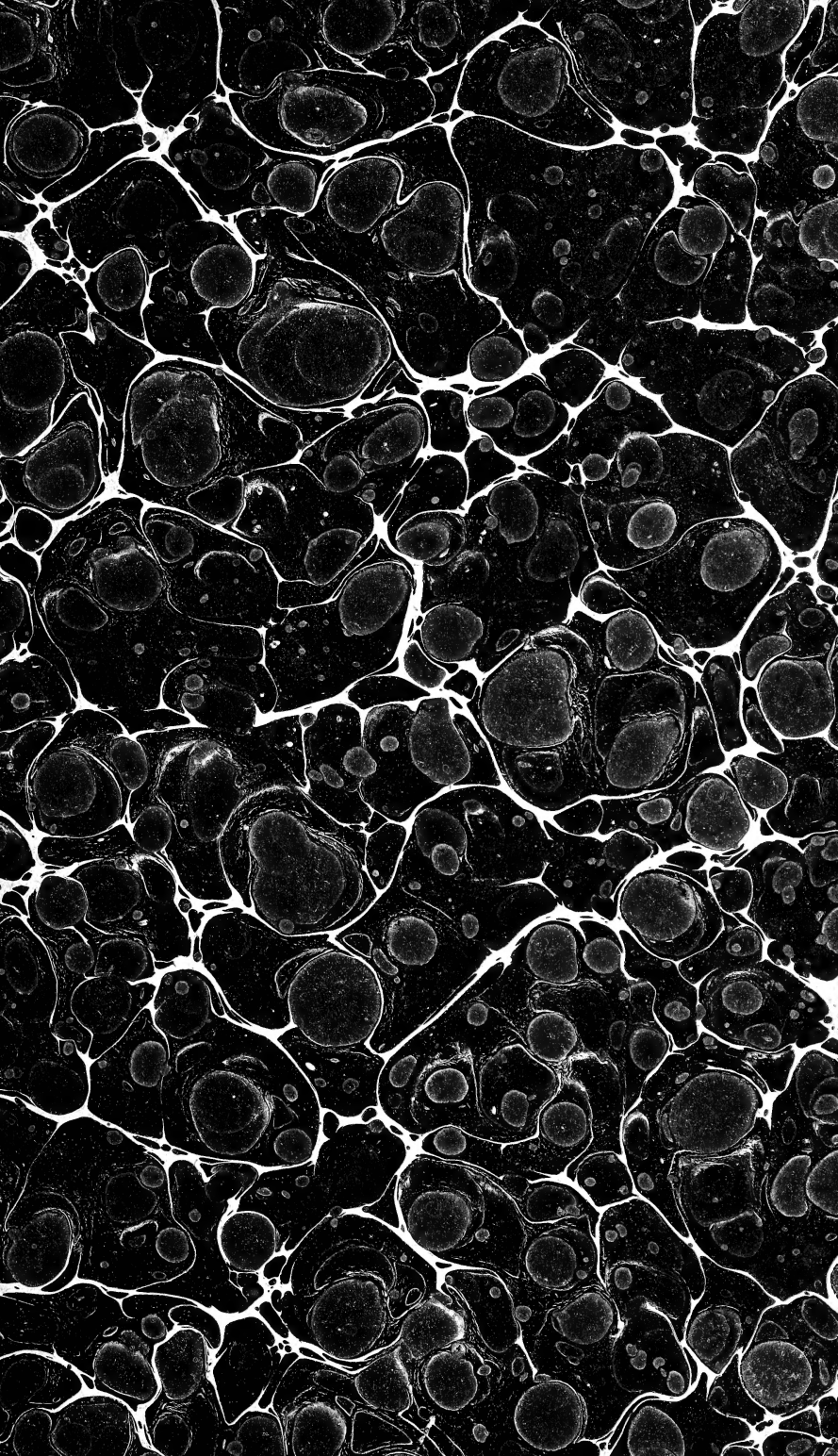

CIRCULAR NO. 89. Issued May 14, 1907.

United States Department of Agriculture,

BUREAU OF ENTOMOLOGY,

L. O. HOWARD, Entomologist and Chief of Bureau.

THE PERIODICAL CICADA IN 1907.

(*Tibicen septendecim* L., race *tredecim* Walsh-Riley.)

By C. L. MARLATT,

Entomologist and Acting Chief in Absence of Chief.

This is a circular of inquiry concerning the brood of the periodical cicada or "locust" (fig. 1) which will occur in May and June of this year throughout the Southern States east of Texas, except Florida, northward in the Mississippi and Ohio valleys through Missouri to southeastern Iowa, and over most of central and southern Illinois and extreme southwestern Indiana. This brood covers also western Kentucky and more or less of Tennessee, with extensions northeastward across the Carolinas into Virginia. A doubtful record is known from the Rio Grande in the region of El Paso, Tex., but no other records have been obtained for this State, and the El Paso record is therefore open to some question.

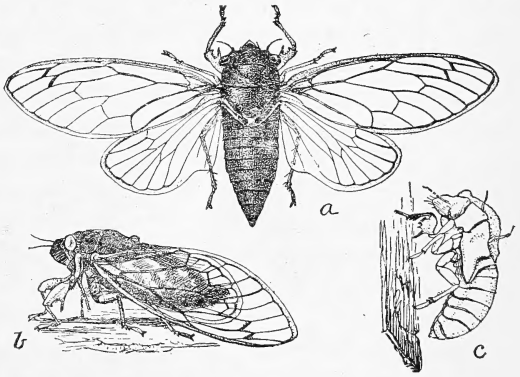

FIG. 1.—The periodical cicada (*Tibicen septendecim*): *a*, adult; *b*, same, side view; *c*, shed pupal skin. Natural size (author's illustration).

The Bureau of Entomology wishes to obtain a complete record of the distribution of this important brood this year, and therefore a reply card is sent with this circular, on which the information relating to its occurrence in each district may be indicated. It is hoped that every recipient of this circular and reply card will keep the matter in mind, fill out the card as indicated, and return it to this office. *A negative record is often quite as valuable as one of actual occurrence.* The card should be filled out with the name of the locality, including the State, county, and town, the name of the observer, and the date. Space is left at the bottom of the card for a note on any features of interest, and the information given should include the date of first appearance or emergence of the cicada, the date of its general disappearance, and the

numbers—in other words, whether very numerous or scattering, or whether only a few individuals occur. No postage is necessary on this card.

The cicadas or "locusts" will appear between the middle and end of May—later in the northern range of the brood and perhaps a little earlier in the southern range. Records of scattering occurrence after the middle of June may apply to other species of cicadas which occur every year, and in any doubtful case it will be just as well to send specimens for determination.

It is especially desirable to have the wooded river bottoms of southeastern Texas and of the Rio Grande examined for the possible occurrence of this insect, and also Indian Territory, Oklahoma, and southeastern Kansas, to determine more accurately than is now known the western limits of this brood.

The brood of this year is the largest of the thirteen-year broods of this curious insect. The first record of it relates to its occurrence in 1803, and it has been recorded at every thirteen-year period since that year to the date of last appearance, in 1894. A great many records have already been obtained on the various years when it appeared, and notably on the last three return periods; but in all the recent instances when it has been studied carefully it has come in conjunction with some brood of the northern seventeen-year race, and there has been some overlapping of territory. Necessarily, therefore, there exists some uncertainty as to the records falling in territory covered by both races. In 1907 this thirteen-year brood will occur without any northern or seventeen-year brood, and all of the records can probably be safely assigned to the former, so that it should be possible this year to clear up any uncertainty as to distribution.

The accompanying map (fig. 2) showing the distribution of the brood is the one published in Bulletin No. 14, which gives a general account of the periodical cicada. Since the publication of this bulletin a good many new records not indicated on the map have been obtained for this brood. All the State and county occurrences now recorded are given in the list below. The map, however, indicates the substantial distribution, as most of the new records fall within those plotted on the map.

Its present limits are as follows:

Alabama.—Autauga, Blount, Bullock, Cherokee, Colbert, Cullman, Dallas, Dekalb, Elmore, Etowah, Franklin, Hale, Jackson, Jefferson, Lamar, Lauderdale, Lowndes, Macon, Marengo, Mobile, Montgomery, Perry, Randolph, Russell, St. Clair.

Arkansas.—Baxter, Benton, Boone, Carroll, Clark, Clay, Conway, Crawford, Drew, Franklin, Fulton, Garland, Grant, Greene, Hempstead, Hot Spring, Izard, Johnson, Lawrence, Logan, Lonoke, Madison, Marion, Newton, Prairie, Pulaski, Randolph, Searcy, Sebastian, Sharp, Stone, Van Buren, Washington, White.

Georgia.—Campbell, Catoosa, Chattooga, Cherokee, Fulton, Harris, Houston, Pike, Rabun, Richmond, Walker.

Illinois.—Adams, Bond, Cass, Champaign, Christian, Clark, Clay, Clinton, Coles, Crawford, Cumberland, Douglas, Edgar, Edwards, Effingham, Franklin, Gallatin, Greene, Hamilton, Hancock, Hardin, Iroquois, Jasper, Jefferson, Jersey, Johnson, Lawrence, Livingston, McLean, Macon, Macoupin, Madison, Marion, Massac, Monroe, Montgomery, Morgan, Perry, Piatt, Pike, Pope, Randolph, Richland, St. Clair, Saline, Sangamon, Scott, Shelby, Union, Vermilion, Wabash, Washington, Wayne, White, Williamson.

Indiana.—Vanderburg.

Indian Territory.—Choctaw, Creek.

Iowa.—Lee.

Kentucky.—Carlisle, Graves, Lyon, McCracken, Marshall.

Louisiana.—Bossier, Caddo, Claiborne, Morehouse, Washington.

Mississippi.—Attala, Carroll, Clarke, Copiah, Franklin, Jasper, Lauderdale, Leake, Madison, Monroe, Oktibbeha, Webster.

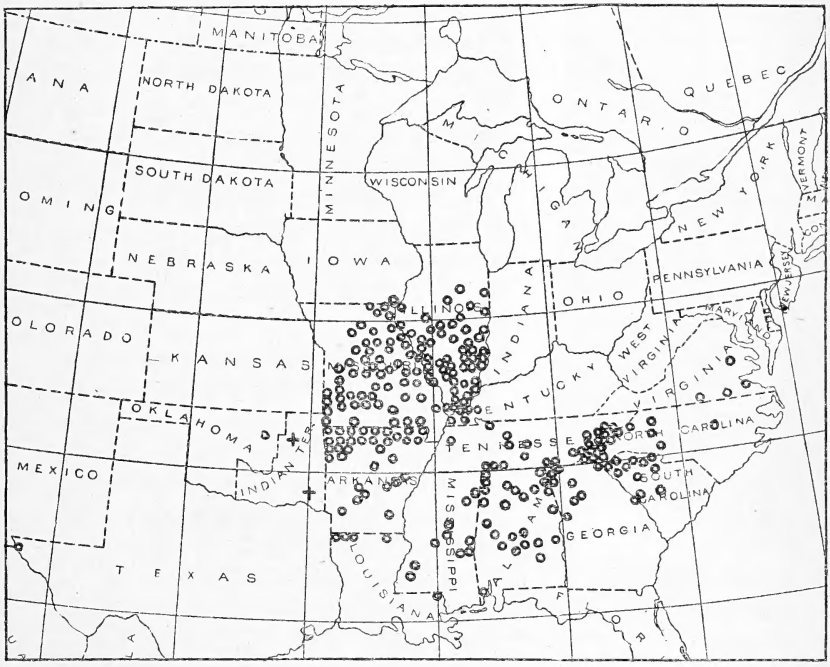

FIG. 2.—Map showing distribution of Brood XIX, 1907.

Missouri.—Audrain, Barry, Barton, Benton, Bollinger, Boone, Butler, Callaway, Cedar, Chariton, Clark, Cole, Cooper, Dade, Dallas, Douglas, Franklin, Gasconade, Greene, Henry, Howard, Iron, Jasper, Jefferson, Knox, Laclede, Lawrence, Lewis, Linn, Livingston, McDonald, Macon, Madison, Marion, Moniteau, Monroe, Morgan, Newton, Oregon, Pettis, Phelps, Pike, Polk, Pulaski, Ralls, Randolph, Ripley, St. Charles, St. Clair, St. Francois, St. Louis, Saline, Schuyler, Scotland, Shannon, Stoddard, Stone, Warren, Washington, Webster, Wright.

North Carolina.—Caldwell, Cherokee, Clay, Davie, Graham, Granville, Haywood, Iredell, Macon, Madison, Mecklenburg, Moore, Swain, Wake, Wilkes.

Oklahoma Territory.—Payne.

South Carolina.—Aiken, Anderson, Chester, Greenville, Laurens, Oconee, Orangeburg, Pickens, Spartanburg, Union, York.

Tennessee.—Bedford, Blount, Cocke, Davidson, Gibson, Giles, Greene, Hamblen, Hamilton, Hickman (?), Jefferson, Knox, Lawrence, McMinn, Marion, Monroe, Montgomery, Rutherford, Sevier, Stewart, Wayne, Williamson, Wilson.

Texas.—El Paso (?).

Virginia.—Brunswick, Halifax, Hanover, Prince George.

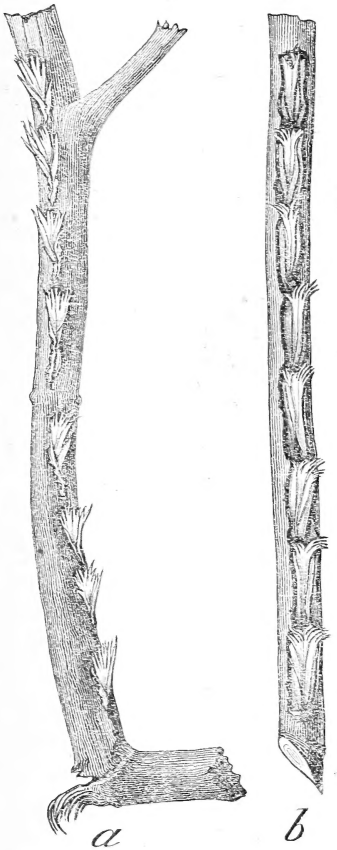

FIG. 3.—Egg punctures of the periodical cicada: *a*, twig showing recent punctures, from front and side, and illustrating manner of breaking; *b*, twig showing older punctures, with retraction of bark and more fully displaying the arrangement of fibers. Natural size (after Riley).

GENERAL CONSIDERATIONS.

The periodical cicada is so well known that a general account of it in this place is unnecessary. When it appears in great numbers it naturally causes considerable alarm and arouses fears for the safety of shade trees and orchards. The actual damage, however, is usually slight, except in the case of newly planted orchards, and even here, by vigorous pruning back after the cicada has disappeared, much of the injury caused by the egg punctures (fig. 3) can be obviated.

Ordinary repellent substances, such as kerosene emulsion or carbolic acid solutions, seem to have very little effect in preventing the oviposition of these insects. Some recent experience, however, indicates that trees thoroughly sprayed with Bordeaux mixture or a lime wash are apt to be avoided by the cicada, especially if there are other trees or woods in the neighborhood on which they can oviposit. The most reliable means of protecting nurseries and young orchards is by collecting the insects in bags or umbrellas from the trees in early morning or late evening, when they are somewhat torpid. Such collections should be undertaken at the first appearance of the cicada and repeated each day.

It is hoped that everyone who receives this circular will keep a sharp lookout for swarms of this brood of cicada and assist the Bureau in fixing its range accurately by sending explicit information.

Approved:

JAMES WILSON, *Secretary of Agriculture.*

WASHINGTON, D. C., *April 23, 1907.*